

§ 54.05-17

test plates shall be prepared for each 165 feet (50 meters) of production butt type welds.

§ 54.05-17 Weld toughness test acceptance criteria.

(a) For Charpy V-notch impact tests the energy absorbed in both the weld metal and heat affected zone impact tests in weld qualification and production shall be:

(1) For weld metal specimens, not less than the transverse values required for the parent material.

(2) For heat affected zone specimens, when the specimens are transversely oriented, not less than the transverse values required for the parent material.

(3) For heat affected zone specimens, when the specimens are longitudinally oriented, not less than 1.5 times the transverse values required for the parent material.

(b) For drop-weight tests both specimens from each required set shall exhibit a no-break performance.

[CGFR 68-82, 33 FR 18828, Dec. 18, 1968, as amended by CGD 73-254, 40 FR 40164, Sept. 2, 1975]

§ 54.05-20 Impact test properties for service of 0 °F and below.

(a) *Test energy.* The impact energies of each set of transverse Charpy specimens may not be less than the values shown in Table 54.05-20(a). Only one specimen in a set may be below the required average and the value of that specimen must be above the minimum impact value permitted on one specimen only. See § 54.05-5(c) for retest requirements.

TABLE 54.05-20(a)—CHARPY V-NOTCH IMPACT REQUIREMENTS

Size of specimen	Minimum impact value required for average of each set of 3 specimens foot-pounds ¹	Minimum impact value permitted on one specimen only of a set, foot-pounds
10 × 10 mm	20.0	13.5
10 × 7.5 mm	16.5	11.0
10 × 5 mm	13.5	9.0
10 × 2.5 mm	10.0	6.5

¹ Straight line interpolation for intermediate values is permitted.

(b) Transversely oriented Charpy V-notch impact specimens of ASTM A 203

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(incorporated by reference, see § 54.01-1) nickel steels must exhibit energies not less than the values shown in § 54.05-20 (a). Requirements for 9 percent nickel steels are contained in § 54.25-20. Other nickel alloy steels, when specially approved by the Commandant, must exhibit a no-break performance when tested in accordance with the drop weight procedure. If, for such materials, there are data indicating suitable correlation with drop-weight tests, Charpy V-notch tests may be specially considered by the Commandant in lieu of drop-weight tests. If the drop-weight test cannot be performed because of material thickness limitations (less than one-half inch), or product shape, or is otherwise inapplicable (because of heat treatment, chemistry etc.) other tests or test criteria will be specified by the Commandant.

(c) Where sufficient data are available to warrant such waiver, the Commandant may waive the requirements for toughness testing austenitic stainless steel materials. Where required, austenitic stainless steels are to be tested using the drop-weight procedure and must exhibit a no-break performance. Where data are available indicating suitable correlation of Charpy V-notch results with drop-weight NDT or no-break performance, Charpy V-notch tests may be specially considered by the Commandant in lieu of dropweight tests. If the dropweight test cannot be performed because of material thickness limitations (less than one-half inch), or product shape, or is otherwise inapplicable (because of heat treatment, chemistry, etc.) other tests and/or test criteria will be specified by the Commandant.

[CGD 73-254, 40 FR 40164, Sept. 2, 1975, as amended by USCG-2000-7790, 65 FR 58460, Sept. 29, 2000]

§ 54.05-25 [Reserved]

§ 54.05-30 Allowable stress values at low temperatures.

(a) The Coast Guard will give consideration to the enhanced yield and tensile strength properties of ferrous and nonferrous materials at low temperature for the purpose of establishing allowable stress values for service temperature below 0 °F.

(b) The use of such allowable stress values must be specially approved by the Coast Guard for each application. Further information may be obtained by writing to the U.S. Coast Guard, Office of Design and Engineering Standards (CG-ENG), 2100 2nd St. SW., Stop 7126, Washington, DC 20593-7126..

(c) Submittals must include information and calculations specified by the U.S. Coast Guard, Office of Design and Engineering Standards (CG-ENG) to demonstrate that the allowable stress for the material cannot be exceeded under any possible combination of vessel loads and metal temperature.

[CGD 73-133R, 39 FR 9179, Mar. 8, 1974, as amended by CGD 82-063b, 48 FR 4781, Feb. 3, 1983; CGD 95-072, 60 FR 50462, Sept. 29, 1995; CGD 96-041, 61 FR 50727, 50728, Sept. 27, 1996; USCG-2009-0702, 74 FR 49228, Sept. 25, 2009; USCG-2012-0832, 77 FR 59777, Oct. 1, 2012]

Subpart 54.10—Inspection, Reports, and Stamping

§ 54.10-1 Scope (modifies UG-90 through UG-103 and UG-115 through UG-120).

The inspection, tests, stamping, and reports for pressure vessels shall be as required by paragraphs UG-90 through UG-103 and UG-115 through UG-120 of section VIII of the ASME Boiler and Pressure Vessel Code (incorporated by reference; see 46 CFR 54.01-1) except as noted otherwise in this subpart.

[CGFR 68-82, 33 FR 18828, Dec. 18, 1968, as amended by USCG-2003-16630, 73 FR 65167, Oct. 31, 2008]

§ 54.10-3 Marine inspectors (replaces UG-90 and UG-91, and modifies UG-92 through UG-103).

(a) Only marine inspectors shall apply the Coast Guard Symbol. They will not apply any other code symbol to pressure vessels.

(b) All pressure vessels not exempted under provisions of § 54.01-15 shall be inspected by a marine inspector referring to procedures outlined in UG-92 through UG-103 of section VIII of the ASME Boiler and Pressure Vessel Code (incorporated by reference; see 46 CFR 54.01-1) and §§ 50.30-10, 50.30-15, and 50.30-20 of this subchapter. The marine inspector will then stamp the vessel with the Coast Guard Symbol.

(c) Pressure vessels described in § 54.01-5(c)(3), except pressure vessels in systems regulated under § 58.60 of this chapter, must be visually examined by a marine inspector prior to installation. The marine inspector also reviews the associated plans and manufacturers' data reports. If, upon inspection, the pressure vessel complies with the applicable requirements in § 54.01-5, the marine inspector stamps the pressure vessel with the Coast Guard Symbol.

[CGFR 68-82, 33 FR 18828, Dec. 18, 1968, as amended by CGD 77-147, 47 FR 21810, May 20, 1982; USCG-2003-16630, 73 FR 65167, Oct. 31, 2008]

§ 54.10-5 Maximum allowable working pressure (reproduces UG-98).

(a) The maximum allowable working pressure for a vessel is the maximum pressure permissible at the top of the vessel in its normal operating position at the designated coincident temperature specified for that pressure. It is the least of the values found for maximum allowable working pressure for any of the essential parts of the vessel by the principles given in paragraph (b) of this section and adjusted for any difference in static head that may exist between the part considered and the top of the vessel. (See Appendix 3 of section VIII of the ASME Boiler and Pressure Vessel Code (incorporated by reference; see 46 CFR 54.01-1).)

(b) The maximum allowable working pressure for a vessel part is the maximum internal or external pressure, including the static head hereon, as determined by the rules and formulas in section VIII of the ASME Boiler and Pressure Vessel Code, together with the effect of any combination of loadings listed in UG-22 of section VIII of the ASME Boiler and Pressure Vessel Code (see 46 CFR 54.01-30) that are likely to occur, or the designated coincident operating temperature, excluding any metal thickness specified as corrosion allowance. (See UG-25 of section VIII of the ASME Boiler and Pressure Vessel Code.)

(c) Maximum allowable working pressure may be determined for more than one designated operating temperature, using for each temperature the applicable allowable stress value.